Effect of Endurance and Mixed Training on Selected Physiological Variables and Body Composition of Overweight Women

A proposal submitted to Swami Ramanand Teerth Marathwada University, Nanded for the partial fulfilment of Doctor of Philosophy in Physical Education under the faculty of Physical Education

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Effect of Endurance and Mixed Training on Selected Physiological Variables and Body Composition of Overweight Women.

Introduction

In our history we were more concern about communicable disease till we understand that much of our health diseases can be caused by choices peoples makes in their day to day life. Non communicable disease is defined as disease of long duration generally slow progression and major cause of adult mortality and morbidity worldwide (WHO, 2005). The major Non communicable disease is cardiovascular diseases (including heart diseases & stroke), Diabetes, Cancer & chronic respiratory diseases (including chronic obstructive pulmonary disease & asthma).obesity is the main cause of lifestyle disease.

When energy intake from food chronically exceeds energy expenditure, the body stores excess energy in the form of fat, excess body fat has adverse health effects contributing to lifestyle disease. Obesity is defined as body mass index (BMI) of 30 or greater (USDHHS,1998). Being overweight or obese is a concern because it is a risk factor associated with the development of most of the lifestyle disease.

Obesity/ Diabetes

- 31 percent of urban Indians are either overweight or obese
- Obesity can, in fact, triple the risk of heart disease.
- India has one of the highest numbers of diabetic patients in the world, as many as 30 million, and growing by the day.

Aerobic training

There are numerous data suggesting that aerobic-type exercise improves lipoprotein-lipid profiles, cardio respiratory fitness and body composition in healthy young women. It is known, that elevated aerobic energy expenditure might be associated

with a highly favourable stabilization of most known as traditional, as well as emerging, cardiovascular risk predictors. One of the example could be the Baduanjin exercise (traditional, and one of the most common, Chinese exercise consisting of eight types of body movements each focusing on different body part. Some data evidence that it could modulate the blood lipid profile by decreasing plasma cholesterol, triglycerides, and low-density lipoprotein cholesterol concentration and increasing plasma high-density lipoprotein cholesterol concentration of non-athletes participants compared to a group of no exercise. Moreover, Hurley reported the reduction in triglyceride concentration, but no change in total cholesterol or lipoprotein concentrations in blood of non-athletes participating in aerobic-type exercise training, as well as no changes in any lipids or lipoproteins in a group of inactive controls.

Mixed Training

Alternatively, the results of recent research indicate numerous potential advantages of strength training in the therapy of obesity, including increases in muscle strength, prevention of sarcopenia with ageing, preservation of bone mineral density, and reduction of body fat. Such evidence of the benefits of the implementation of strength exercise in the treatment of obesity has initiated a discussion on the necessity of developing an optimal training program. The European Society of Hypertension and the European Society of Cardiology, in their 2013 guidelines for the management of arterial hypertension, recommend dynamic resistance training, though not isometric training, performed 2-3 days per week as a means to reduce blood pressure and improve metabolic parameters .Strength exercises seem to be a neglected aspect of the recommendations concerning the treatment of obesity by exercise.

Purpose of my study is to compare the effect of endurance and Mixed Training on selected physiological variables and body compositions and want to know that which type of training will give more training effect.

Statement of the problems

Obesity is major concerns in todayôs world. Deaths from lifestyle diseases like cancer and heart diseases are now the primary cause of deaths in India and it is seen that relatively young people are dying. According to WHO which has identified India is one of the nations that are going to have most of the lifestyle diseases in near future already considered the diabetes capital of the world. India is now heading towards becoming capital of lifestyle disorder. Hence researcher wants to identify which method of training either endurance or Mixed Training will be more beneficial in dealing with obesity.

Operational definition

Overweight Women- All women whose BMI is above and equal to 25 and who is not undergoing any medications are called as overweight women for my study.

Endurance Training- Any form of exercise in which participants heart rate is 50 to 70 % intensity of their maximum heart rate for 45 minutes duration

Mixed Training- exercise in combination of resistant training and endurance training in every other session for 45 minutes duration

Selected physiological variables- Cholesterol, blood pressure.

Body compositions- Weight, Fat %

NEED AND IMPORTANCE OF THE STUDY

- The study provides current physiological and body composition status level of overweight womenôs
- Study will help all overweight women to know which method of training will be beneficial in dealing with overweight
- Study will help all fitness institution to conduct suitable training programme in dealing with overweight women
- Study will help overweight people to know the effect of different exercise in dealing with overweight women

OBJECTIVES

- To asses Effect of Endurance training on Selected Physiological Variables and Body Composition of Overweight Women
- To asses Effect of Mixed Training on Selected Physiological Variables and Body Composition of Overweight Women
- To compare the Effect of Endurance and Mixed Training on Selected Physiological Variables and Body Composition of Overweight Women

REVIEW OF RELATED LITERATURE

Effect of 12-week-long aerobic training programme on body composition, aerobic capacity, complete blood count and blood lipid profile among young women (Feb 2015) Kostrzewa-Nowak D, Nowak R, Jastrzębski Z, ETL.

Abstract

Background

Numerous data suggest that aerobic-type exercise improves lipoprotein-lipid profiles, cardiorespiratory fitness and body composition in young women. The aim of this study was to evaluate the biological response to high-low impact aerobic fitness among young women.

Materials and methods

Thirty-four young women aged 22 (19-24) years were divided into three groups: underweight (N = 10), normal weight (N = 12) and overweight (N = 12). Aerobic capacity, anthropometry and body composition together with complete blood count and lipid profile were determined before and after completion of a 12-week-long training period.

Results

The training programme caused a significant decrease in weight (by 4.3 kg, P = 0.003), body mass index (by 1.3 kg/m^2, P = 0.003), free fat mass (by 2.1 kg, P = 0.002), total body water (by 0.4 kg, P = 0.036), percentage of fat (by 3 percent points, P = 0.002), all analyzed skinfolds thicknesses, as well as the lipid profile in overweight group, and no changes in normal weight group. Significant changes in weight (by 4.2 kg, P = 0.005), body mass index (by 0.9 kg/m^2, P = 0.005), crus skinfold thickness (by 3.3 mm, P = 0.028), and in maximum oxygen uptake (by 2.49 mL/kg/min; P = 0.047) were observed among underweight women. No change in total blood count was observed in all groups.

Conclusion

Twelve-week-long fitness training programme of two alternating styles (low and high impact) has a beneficial effect on overweight young women.

Effect of Training on Anthropometric, Physiological and Biochemical Variables of Elite Field Hockey Players (September 9, 2010) Indranil Manna, Gulshan Lal Khanna,Prakash Chandra Dhara

Abstract

The aim of study was to investigate the effect of training on selected anthropometric, physiological and biochemical variables of elite field hockey players. A total of 30 Indian male field hockey players (age: 23.00-30.00 yrs) volunteered for this study. The training sessions were divided into 2 phases (a) Preparatory Phase (PP, 8 weeks) and (b) Competitive Phase (CP, 4 weeks). The training programme consist of aerobic, anaerobic and skill development, and were completed 4 hrs/day; 5 days/week. Selected variables
were measured at zero level (baseline data, BD) and at the end of PP and CP. A significant increase ($P<0.05$) in LBM, back and hand grip strength, serum level of urea, uric acid and HDLC; and a significant decrease ($P<0.05$) in body fat, sub-maximal exercise heart rate and recovery heart rate, hemoglobin, total cholesterol, triglyceride and LDLC were noted in PP and CP of training when compare to BD. No significant change was noted in stature, body mass, HR resting heart rate, VO2max and anaerobic power of the players after the training. Since the data on field hockey players are limited in India, the present study may provide useful information to the coaches to develop their training programme.

Effects of Endurance and Endurance strength training on Body Composition and Physical Capacity in Women with Abdominal Obesity. (May 8 2015) Damian Skrypnik, Pawel Bogdański

Aims: To compare the effects of endurance training with Mixed Training on the anthropometric, body composition, physical capacity, and circulatory parameters in obese women. Methods: 44 women with abdominal obesity were randomized into groups A and B, and asked to perform endurance (A) and Mixed Training (B) for 3 months, 3 times/week, for 60 min. Dual-energy X-ray absorptiometry and Graded Exercise Test were performed before and after training

Results:
Significant decreases in body mass, BMI, total body fat, total body, fat mass, and waist and hip circumference were observed after both types of intervention .Marked increases in total body lean and total body fat-free mass were documented in group B. In both groups, significant increases in peak oxygen uptake, time to exhaustion, maximal work rate, and work rate at

ventilatory threshold were accompanied by noticeably decreased resting heart rate, resting systolic blood pressure, and resting and exercise diastolic blood pressure. No significant differences were noticed between groups for the investigated parameters.

Conclusion:
Our findings demonstrate evidence for a favorable and comparable effect of 3-month en-durance and Mixed Training on anthropometric parameters, body composition, physical capacity, and circulatory system function in women with abdominal obesity.

1.8
It is assumed that researcher will get co-operations from the concerned stakeholders.

It is assumed that respondent will follow instructions and will be honest in response to their researcher

HYPOTHESIS

H1 - There is significant effect of Endurance training on Selected Physiological Variables and Body Composition of Overweight Women

H0-1 - There is no significant effect of Endurance training on Selected Physiological Variables and Body Composition of Overweight Women.

H2 There is significant effect of Mixed Training on Selected Physiological Variables and Body Composition of Overweight Women.

H0-2 There is no significant effect of Mixed Training on Selected Physiological Variables and Body Composition of Overweight Women.

H3 There is significant difference between Endurance and Mixed Training on Selected Physiological Variables and Body Composition of Overweight Women.

H0-3 There is no significant difference between Endurance and Mixed Training on Selected Physiological Variables and Body Composition of Overweight Women.

METHODS

For this study experimental study was used to find out effect of Endurance and Mixed Training on Selected Physiological Variables and Body Composition of Overweight Women.

RESEARCH DESIGN

For this study 30 participants were selected and equally divided accordingly:

10 Participants for endurance training

10 Participants for mixed training

10 Participants as a control group

SAMPLING

Population

Overweight women aged between 31 to 40 years old from Goa.

SAMPLE AND SAMPLING TECHNIQUES

For this study 30 overweight womenôs from Goa were selected using connivances sampling technique, they were randomly divided into 3 different group

1) Experimental group
   a) Endurance training- 10 participants
   b) Mixed training -10 participants

2) Control group 10 participants

DATA COLLECTION TOOLS AND TECHNIQUES

Researcher will going to measure following variables

Physiological variables

Variables	Tools to measure
Blood Pressure	Sphygmomanometer
cholesterol	Blood sample

Body Compositions

Weight	Weighing scale
Fat %	Omron machine

In order to find out the effect of training Plan researcher will conduct pre test and post test

Training plan

Training paln experimental group 1 (Endurance training)

Sr no	Training methods	Days	duration	intensity
1	Slow Continuous training	Day 3,4,19,33,18	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 60% intensity of their maximum heart rate
2	Circuit training	Day 5,6,20,21,34	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 60% intensity of their maximum heart rate
3	Interval training	Day 7,8,22,23,	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 60% intensity of their maximum heart
4	Fartlek training	Day 9,10,24,25,	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 70% intensity of their maximum heart
5	Recreational games	Day 1,217,26	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 70% intensity of their maximum heart
6	Aerobic dance	Day 11,12,27,28	Warm up 7	50 % to 70%

			minutes Main activity 30 minutes Cooling down 8 minutes	intensity of their maximum heart
7	Zumba dance	Day 13,14,29,30,36	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 70% intensity of their maximum heart
8	Different ball games	Day 15,16,31,32	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 70% intensity of their maximum heart

Training plan for experimental group 2 (Mixed training)

1) Endurance training

Sr no	**Training methods**	**Days**	**duration**	**intensity**
1	Slow Continuous training	Day 3,19,33,	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 60% intensity of their maximum heart rate
2	Circuit training	Day 5,21,	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 60% intensity of their maximum heart rate
3	Interval training	Day 7,23,	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 60% intensity of their maximum heart
4	Fartlek training	Day 9,,25,	Warm up 7 minutes Main activity	50 % to 70% intensity of their maximum heart

			30 minutes Cooling down 8 minutes	
5	Recreational games	Day 1,17,	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 70% intensity of their maximum heart
6	Aerobic dance	Day 11,,27,	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 70% intensity of their maximum heart
7	Zumba dance	Day 13,,29,	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 70% intensity of their maximum heart
8	Different ball games	Day 15,,31,	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	50 % to 70% intensity of their maximum heart

Training Plan for experimental group 2 (Mixed training)

2) Resistance training

Sr.no	Training methods	Days	duration	intensity
1	Whole body resistant training	2,12,22	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	6 to 8 exercise 2 to 3 stes
2	core	4,14,24,32	Warm up 7 minutes Main activity 30	6 to 8 exercise 2 to 3 stes

			minutes Cooling down 8 minutes	
3	Upper body	6,16,26	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	4 to 6 exercise 2 to 3 stes
4	Lower body	8.18,28,34	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	4 to 6 exercise 2 to 3 stes
5	External resistance	10,20,30,,36	Warm up 7 minutes Main activity 30 minutes Cooling down 8 minutes	4 to 6 exercise 2 to 3 stes

STATISTICS OF RESEARCH

In order to find out the effect of exercise Annova test will be conducted

In order to compare exercise ANOVA test will be conducted

SCOPE OF THE RESEARCH

The scope of the research is expanded to the effect of an aerobic and anaerobic workout on different physiological variables and structural and functional changes of different organs and system this knowledge of research can also analysis variations in the body compositions through aerobic and anaerobic exercise of overweight women of goa. Though it is not a part of research this research will also help you to understand the forces why women are not being part of physical activity.

LIMITATIONS

- Honesty of the respondent in recording responses remains limitations of the study

- Diet control remains limitations of the study.

DELIMITATIONS

- The study is delimited to state of Goa.
- The study is delimited to overweight women aged between 31-40 years.

Possible Knowledge Contributation

The study of research effect will contribute towards overweight women, fitness industry and many others

CHAPTALIZATION

1: Introduction

2: Review of Related Literature

3: Research Methodology

4: Data Analysis and Interpretation

5: Summary, Conclusion and Recommendations of the Study

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